Awarding Great British Qualifications

Module Title

Topic 3:

Designing and Developing for Mobile Websites

Scope and Coverage

This topic will cover:

- Designing and developing for mobile websites:
  - CCS3
  - Flexible layouts
  - Resizing and adjustments
  - Code to redirect mobile users
  - Location map
  - Web form

Learning Outcomes

By the end of this topic students will be able to:

- Design and code a web-based user interface appropriate to a given problem including mobile website.

Introduction to Mobile Websites

- It is a trend now users access the internet and web pages through a mobile device including mobile phones, wearables and tablets.
- Statistics show that more people are using mobile devices than traditional desktop devices.
- Designing web page for mobile devices is a tendency practice as the business can be at risk of loosing users.

Differences between traditional and mobile website

- A mobile website is specifically designed and scaled to function on device screen.
- A mobile website uses fonts and graphics that are easy to navigate and read.
- Some mobile websites considerations:
  - Navigation buttons with easy-to-ready print
  - Click to call features so that user can touch to dial without having to enter all numbers
  - GPS and directions to find the business
  - Easy to load streamlined menus

Mobile Website Advantages

- Users can access content specifically designed for mobile devices enabling better user experience.
- The mobile optimised website is easy to use and loads quickly meaning users can perform transactions without visiting the desktop site.
- Businesses without mobile site are likely to loose users and customers.

Mobile Website Considerations

- Consider the restricted viewing space – for example a mobile website tends to be one column of data.
- Use semantic HTML elements for search engine friendly.
- Viewport and flexible layouts are used with Dynamic Image Scaling.
- Consider touch screen rather than mouse and keyboard entry.
- Dropdown menus may work better when displayed in single menu (one column).

Example Basic Mobile Page

```
<!DOCTYPE html>
 <html>
 <meta name="viewport" content="width=device-width, initial-
 scale=1">
 <link rel="stylesheet" href="mymobile.css">
 <body>

 <h1>Zanzibar Zoo</h1>
<p>Welcome to Zanzibar Zoo</p>

 </body>
 </html>
```

Responsive Design

Example Desktop Layout

Example Tablet Layout

Example Mobile Layout

By using media queries you can set the style for different devices in the one web page.

Viewport

- Viewport is the visible area of a web page to the user on a mobile device. This will depend on the device.
- Viewport is set through the <meta> tag.
- This should be included in all web pages.

<meta name="viewport" content="width=device-width, initial-scale=1.0">

Some Considerations

- Avoid user scrolling horizontally by setting small fixed width elements.
- Avoid using viewpoint width (eg CSS pixels vary widely between devices)
- Avoid setting absolute CSS page width elements – use relative width values eg 100%.

Grid View instead of Box Model

- Traditionally web pages were designed using box model.
- Responsive Design uses grid view which allows the page to be divided into columns.
- Grid views consume up to 12 columns and a total width of 100% which can shrink and resize depending on the size of the browser window of the device.

Example Grid View CSS 1

- All HTML elements need to have box-sizing property set to border-box.
- This is to ensure that the padding and border are included in the overall width and height of the elements.

```
{
    box-sizing: border-box;
}
```

Example Grid View CSS 2

- To set a responsive web page with three columns of 20%, 50% and 30%:

```
.menu {
    width: 20%;
    float: left;
}
.menuitem {
    width: 50%;
    float: left;
}
.main {
    width: 30%;
    float: left;
}
```

Responsive Web Design - Media Query

- A media query is used for contents to be adapted to meet the screen resolution requirements eg changing between computer screen and smartphone screen.
- Based on the different media type detected, the media query allows different style rules to be applied on the webpage.

```
@media only screen and (max-width: 700px) {
    body {
        background-color: lightblue;
    }
}
```

This media query checks the size of the browser window and then changes the background colour to meet the query requirement.

- If the browser is small than 700px, change the background colour to lightblue.

Responsive Web Design – Images 1

- To have a responsive image for a webpage, set the image width property to the desired size.
- The image will be responsive and scale up or down based on the browser window.

```
img {
    width: 100%;
     height: auto;
 }
```

The image width is set to 100%. The image can be scaled up larger than its original size based on the browser window.

Responsive Web Design – Images 2

- This is an example for inserting a background image that will resize to the content area:

```
div {
    width: 100%;
    height: 400px;
    background-image: url('img_car.jpg');
    background-size: 100% 100%;
    border: 1px solid red;
}
```

Image Resizing

- Images can be resized using css as we have shown earlier or alternatively through an image resizer can be used where the image is rewritten by the resizer to match the browser screen. This can be through a:
  - Co-operative image resizer – the resizer amends the image size to match the browser screen dimensions so that image attributes points to a resized image.
  - Independent image resizer – the resizer uses Javascript to resize the images. Javascript scans for any <img> tags in the code and rewrites these to <img src> for the resizer.

Text Resizing

- Consider text to be large enough to read on a mobile size.
- How text can be resized when the user switches from portrait to landscape view?
- Media queries are a great way to set different style rules for different devices.

Toggle Extra Content On/Off

- Consider extra content that could be switched on and off when viewed through mobile device:
  - Web forms
  - Dynamic menus
  - Image sliders
- CSS or JavaScript can be used to edit the content through a created toggle button.
- jQuery Library includes code for displaying or hiding elements. We will cover this in Topic 7.

@Media Queries

- Media Queries in CCS3 are rules that define different styles/fonts and how they are displayed in different devices.
- Media queries look at the device eg a media query might check the screen resolution, it interprets this information and then delivers the content relevant to the device.

Media Query Adjustments

- Media queries are logical expressions that are either true or false.

```
<link rel="stylesheet" media="screen and (color)" href="example.css" />
```

- This media query looks at example.css and looks to see if this style sheet applies to a media screen with a certain feature which must be colour.

Code to redirect mobile users

- If a website is not designed and created using responsive web design, then a redirect to the mobile version of the site for mobile users should be incorporated.
- Browsers send data as “user-agent” to the web server showing the type of device the browser is being opened in.
- Another method is screen resolution.

Code to redirect mobile users

- Various methods can be used to redirect website for mobile device users:
  - JavaScript Method
  - PHP Method
  - CSS@ media method

Example JS Redirect Mobile Site

```
<script type="text/javascript">
  <!--
  if (screen.width <= 800) {
    window.location = "http://m.domain.com";
  }
  //-->
 </script>
```

Mobile web and location map

- Embed Google Maps in the website for interactive map or street view panorama.
- Two methods:
  - Google Maps JavaScript API
  - Google Static Maps API
- You will learn more about APIs in Topic 9.

Mobile web and forms

- Using forms on mobile devices is different to desktop website and consideration needs to be given for inputting data:
  - Need to be large enough for touch screen
  - Checkboxes should be easier to tap
  - Tapable links to detect telephone numbers
  - Autocorrect and Autocapitalize

Mobile Form Example

```
<div data-role="page">
 <div data-role="header">
 <h1>Text Inputs</h1>
 </div>

 <div data-role="main" class="ui-content">
  <form method="post" action="demoform.asp">
   <div class="ui-field-contain">
    <label for="fullname">Full name:</label>
    <input type="text" name="fullname" id="fullname">
    <label for="bday">Date of Birth:</label>
    <input type="date" name="bday" id="bday">
    <label for="email">E-mail:</label>
    <input type="email" name="email" id="email" placeholder="Your email..">
   </div>
   <input type="submit" data-inline="true" value="Submit">
  </form>
 </div>
</div>
```

This form when displayed on the website allows the user to enter their name, date of birth and email address.

Social Media Links

- Adding social media share buttons is good practise for any website including mobile website.
  - Content can be easily shared.
  - Buttons should be placed at the bottom or along the side of the page.
- Social login from famous social networking service such as Facebook, Twitter or Google+.
- Integrate social widgets to increase sales and website conversions.

Mobile-Friendly Testing

- Google has a mobile-friendly test tool which allows user to enter the URL of the web page and test how it would perform on a mobile device.
- https://search.google.com/test/mobile-friendly

Conclusion

- Web developer's must consider user experience on different devices.
- CSS, JavaScript and jQuery can be used to add code to html pages to help resize and alter content for mobile devices.

Terminolody

- *JavaScript* – scripts that can be used in web pages to create interactive effects.
- *jQuery* – library of scripts which can be used to build interactive web pages.
- *Media Queries* – Media Queries are CSS technique which deploys styles dependent on the device.

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Any Questions?